

Dry Cool Storage - Spent nuclear fuel

Moist file - Working file

Siozon, Sharon

From: Davis, Jim
Sent: Tuesday, September 24, 2002 12:18 PM
To: Siozon, Sharon
Subject: FW: NRC Proposed Rule to Reduce Seismic Standards for Dry Cask Storage

Please print out. -- Jim

-----Original Message-----

From: Barbara Byron [mailto:Bbyron@energy.state.ca.us]
Sent: Tuesday, September 24, 2002 10:57 AM
To: Davis, Jim
Subject: NRC Proposed Rule to Reduce Seismic Standards for Dry Cask Storage



Untitled Attachment

Hi Jim,

Attached is the e-mail from Mark Johnson (Coastal Commission) to Dick McCarthy with the attachments for the proposed NRC rulemaking.
Let me know if you have trouble opening them.
I'll also forward an e-mail from Mark saying that he'd really like to discuss this with you.
I'll talk with you again soon.
Barbara Byron
654-4976

James, Dawn

From: Barbara Byron [Bbyron@energy.state.ca.us]
Sent: Tuesday, September 03, 2002 1:58 PM
To: ARJones@chp.ca.gov; Davis, Jim; e63@cpuc.ca.gov; stepekj@cwpswrcb.ca.gov; ebailey@dhs.ca.gov; Robert Greger; Susan.Durbin@doj.ca.gov; Bill.Costa@dot.ca.gov; Charleen Fain-Keslar; Andrew Burow; Jeffrey Rubin; Ben_Tong@oes.ca.gov; Bob Gerber; Mark Johnson; Richard@ospr.dfg.ca.gov; chauge@water.ca.gov
Cc: Barbara Byron
Subject: Diablo Canyon Dry Cask Storage Licensing Proceeding

A Prehearing Conference is scheduled next week for the Nuclear Regulatory Commission licensing proceeding to allow PG&E to construct and operate a dry cask storage facility at Diablo Canyon.

The California Energy Commission is participating as an "interested state party", since no other state agency had applied for intervenor status. Our objective is to ensure that issues of interest to the State of California, including electrical system reliability, potential public health and safety and environmental impacts, and spent fuel transportation are adequately addressed in the proceeding. We plan to participate in the proceeding without necessarily taking a position on any given issue.

The San Luis Obispo County Board of Supervisors, the San Luis Obispo Harbor District, and a coalition of environmental groups have filed for intervenor status. These intervenors have raised a number of issues (see the list below) which they want included in this licensing proceeding. The Prehearing Conference will be to decide whether each of these issues can be included in the licensing proceeding. Spent fuel transportation has been raised as an issue (No. 4 below). We'll be asked at the PHC to comment upon which of these issues, if any, should be included as part of the licensing proceeding. At this point, we plan not to object to any of the issues raised.

Please review the attached list of issues and let me know if you recommend a position other than our planned "not object" position for each of the issues. Thanks.

Barbara Byron
654-4976

LIST OF ISSUES RAISED BY INTERVENORS IN THE DIABLO CANYON DRY CASK STORAGE LICENSING PROCEEDING:

1. locating spent fuel storage under high power transmission lines (2 1/2 miles from an earthquake fault).
2. Casks proposed to store spent fuel are licensed for only 20 years, wont protect against 9/11- type attacks, and don't meet 7--7.5 magnitude earthquakes.
3. Pacific Gas & Electric is in bankruptcy and trying to avoid state laws, rules and regulations in the name of "reorganization"
4. Spent fuel produced at Diablo Canyon in San Luis Obispo County will eventually travel south-possibly through Santa Barbara, Ventura, Los Angeles, Riverside, San Bernardino Counties. How will these shipments be protected from possible 9/11-type terrorist attacks or sabotage?
5. Expanded spent fuel storage proposed for an earthquake-prone coastal zone requires full hearings on all safety and financial issues----contentions filed by San Luis Obispo, Santa Barbara and Ventura community intervenors.

Davis, Jim

From: Barbara Byron [Bbyron@energy.state.ca.us]
Sent: Wednesday, October 02, 2002 12:30 PM
To: Mark Johnson; Davis, Jim; Dmccarth@quiknet.com
Cc: Bob Strand; Darcie Houck
Subject: Utah Proposed Findings Related to Seismic Safety on the Proposed Private Fuel Storage License

Utah Proposed
Findings

Dick, Jim and Mark,

Attached FYI are the State of Utah's proposed findings regarding the license before the Nuclear Regulatory Commission to build an above-ground private spent fuel storage facility on tribal land in Utah (Skull Valley Indian Reservation). Utah's findings may be relevant to California's comments on NRC's proposal to lower the seismic safety standard for independent spent fuel storage installations (ISFSI).

Please note that the attachment is over 231 pages long and takes about 20 minutes to print!

Private Fuel Storage (PFS) Inc., a consortium of utilities including Southern California Edison, is proposing to construct and operate this facility to store spent fuel, pending the construction of a permanent disposal facility at Yucca Mountain. The PFS facility would include 4,000 unanchored dry storage casks. Many of the same seismic safety issues they are raising for this PFS facility may be relevant to seismic safety issues for proposed dry cask storage facilities in California.

The heart of Utah's concerns about the PFS facility's design is the seismic performance of the casks and storage pads, as described on page 65 (Note No. 144 and 145). Another of Utah's concern was the need for test data to validate the performance model.

Apparently, NRC's proposed rule on seismic standards for dry cask storage runs in parallel with the PFS case in Utah. Utah said that one of their biggest concerns with NRC's proposed rule was that NRC was not providing a seismic safety standard and instead was leaving it up to the discretion of the NRC staff and the applicant.

Utah's representative thought that the PG&E and SCE dry cask storage licenses are the only examples in which high ground motion is analyzed as part of the license application. Therefore, the attached comments reference cask designs for Diablo Canyon and San Onofre.

Hope this information is useful.

We are planning a conference call this Friday at 10:00 a.m., to coordinate preparation of California comments on the proposed NRC rule.

Barbara Byron
Nuclear Waste Policy Advisor
California Energy Commission
654-4976

Davis, Jim

From: Connie Nakahara [CNAKAHARA@utah.gov]
Sent: Wednesday, October 02, 2002 9:18 AM
To: Bbyron@energy.state.ca.us
Subject: Utah Proposed Findings



WordPerfect 6.1

Barbara:

Here are our proposed findings. Two key sections are the seismic exemption and the cask stability.

We have essentially 5 experts that testified in this matter - a seismologist, a geotechnical engineer (looked at soil issues), a civil engineer specializing in soil structure interaction at nuclear plants, and a mechanical engineer specializing in modeling and seismic qualification of nuclear plant structures, systems and components, and nuclear physicist who looked at potential radiation increases. We could have used additional specialties in structural engineering and risk engineering.

Our experts essentially agreed with PFS (which NRC sort of disagrees) that DOE (Standard 1020) has an acceptable seismic design philosophy for nuclear facilities in which it establishes a "performance goal" of $10E-4$, a design basis earthquake of a 2,500-year return event, and risk reduction ratios of 5 to 10 (design conservatism in the standards). PFS argues that the risk reduction ratios are implicit in the standard review plan (NRC guidance) design standards for nuclear power plants. Utah believes that NRC must establish a performance goal and risk goals (risk reduction ratio in DOE parlance). Additionally, that PFS or NRC must actually show that the performance goal and risk reduction ratios for the PFS site.

NRC on the other hand believe its adequate to only specify a design basis earthquake. If there are no performance goal or risk goals established, there is little engineering control over the safety margins.

PFS requested a seismic exemption from the existing standard (design to a deterministic or worst case earthquake) to a 2,000-year return earthquake. In our case, PFS is reducing the design standard from about 1.25 g to .7 g. The seismic hazard curve at PFS is not as steep as the one at Diablo Canyon or presumably SONGS because as you know, Diablo and SONGS are located near the plate boundaries. Our experts have testified that a 2,500-year return event is probably adequate, but that the specific site (PFS) performance must be evaluated. In our case, PFS is relying solely on a non-linear computer analyses that has not been validated with either performance or test data to predict unanchored cask behavior.

Contrary to their claims in the proposed rule, NRC has essentially NO experience with dry casks in high seismic areas. NRC has licensed dry cask storage with ground motions less than 0.45 g (mostly below .2 g). Cask performance is not essential at low ground motions. Is SONGS licensed? Other than Diablo Canyon, SONGS, and PFS NRC has not even contemplated higher ground motions.

For unanchored casks - the non-linear computer models which is the sole basis to predict cask behavior have not been validated against performance or test data. The University of California, San Diego was apparently given a grant from the National Science Foundation to enlarge its shake table to accommodate dry casks. NRC presumably is seeking funding to conduct dry cask shake table data. NRC has been conducting a dry cask study (which we think is flawed), including analyses at SONGS, PFS, and Hatch (Georgia).

Noted differences in our case and California's -

84th percentile ground motions are similar, but lower return events like 2,000-year in Utah are probably different. Your site seismic hazard curves are probably steeper.

PFS is proposing to use Holtec, HI-STORM 100 unanchored cylindrical casks. Whereas, SONGS is using vertical Transnuclear casks bundled together in groups of 3 or 5. Diablo is using a shorter version the HI-STORM 100 SA and anchoring the cask in the pad. I understand Humbolt will essentially bury their casks to prevent cask tip over. Thus, reliance on nonlinear computer analyses are not as critical. One thing to note, the HI-STAR 100 cask - Holtec's transportation cask will tip over at 0.6 g or less.

PFS is using relatively small concrete storage pads which could slide and impart additional forces on adjacent pads and casks. PFS is proposing shallowly embedded pads and foundations (3 feet deep). Whereas Diablo is using 7 foot thick (???) pads embedded in bedrock.

There is a large fault directly under the PFS site. I understand large faults (Hosgri and San Andreas?) are near Diablo and SONGS, respectively.

The Utah site is on soft clay not bedrock (like Diablo and I think SONGS). PFS is proposing to use cement treated soil to enhance the foundation which is an unprecedented and untested use.

Good luck. I can also send you prefiled testimony or hearing transcripts, but I doubt you want to worry about that at this stage.

Connie

Siozon, Sharon

From: Mark Johnsson [mjohnsson@coastal.ca.gov]
Sent: Friday, September 06, 2002 10:00 AM
To: 'dmccarth@quiknet.com'
Cc: 'Barbara Byron'



Appendix A to Part
100.doc



DG-3021.pdf



EA.doc

Dick--

Attached is the Environmental Assessment put out by the NRC, as well as Appendix A, both as MS Word documents. Also, I'm attaching a pdf of the draft regulatory guide, which presents the arguments most succinctly and has useful technical appendices. This is a link to the Federal Register notice of the rulemaking:

http://frwebgate.access.gpo.gov/cgi-bin/getdoc.cgi?dbname=2002_register&docid=02-18436-filed.pdf

I'd be very interested in your opinion on this; we can chat late next week, but I think I had better have a draft letter done by that time.

Mark

<<Appendix A to Part 100.doc>> <<DG-3021.pdf>> <<EA.doc>>

Mark J. Johnsson

Staff Geologist

California Coastal Commission
45 Fremont St., Suite 2000
San Francisco, CA 94105

(415) 904-5245 (v)
(415) 904-5400 (f)
mjohnsson@coastal.ca.gov
